

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P921823

Luminaire Tested: DFN2DIP-HX4F0-060D060US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921823
REPORT IS A COMBINATION OF REPORTS P899340 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D060US940-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

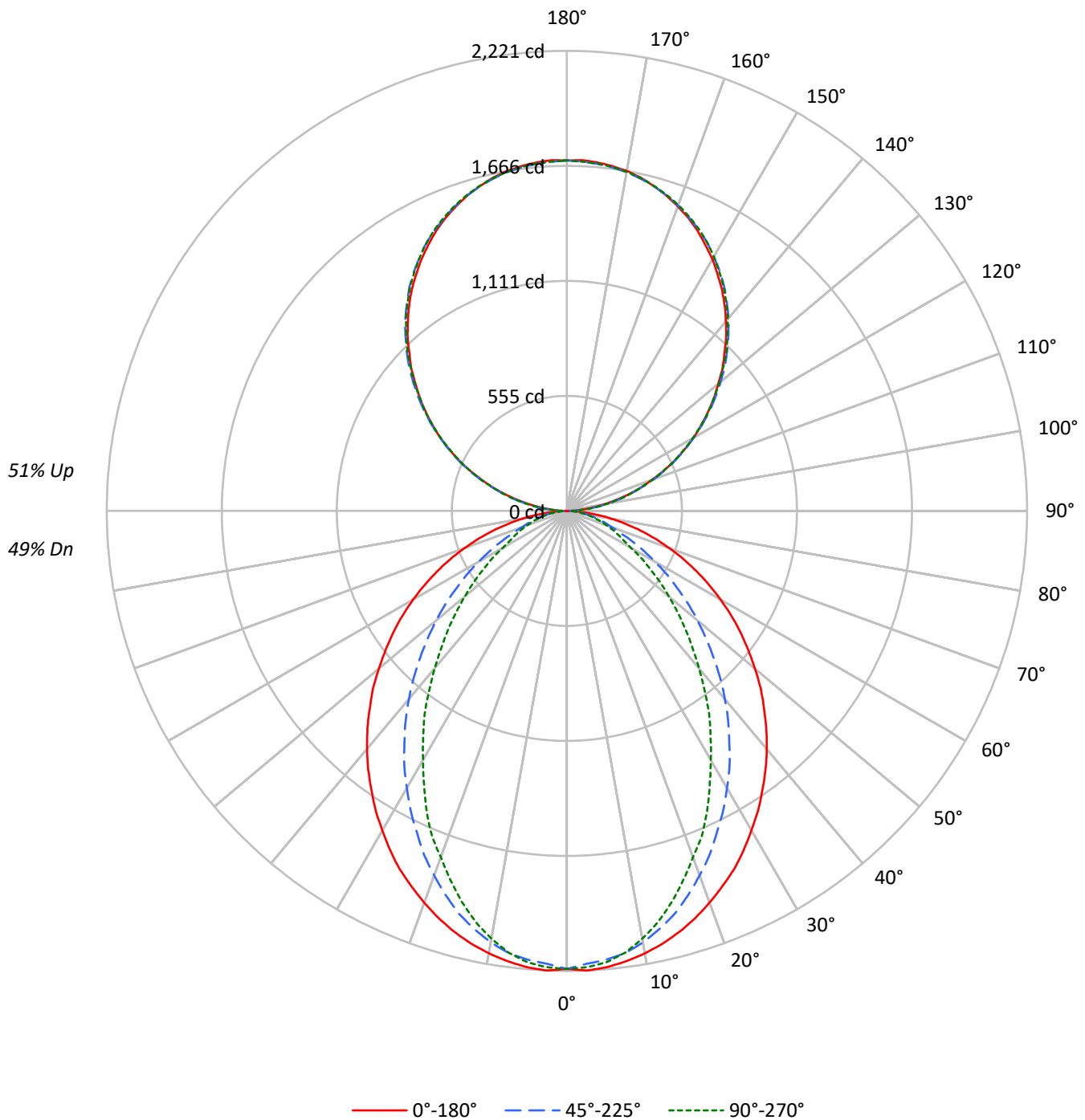
Lumens per Lamp: N/A
Luminaire Lumens: 9282.7 lumens
Efficiency: N/A
Efficacy: 105.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 88.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1644	1644	1644
5°	1647	1618	1629
10°	1631	1587	1576
15°	1608	1534	1494
20°	1579	1462	1393
25°	1549	1381	1296
30°	1508	1298	1173
35°	1468	1209	1065
40°	1427	1117	941
45°	1380	1014	829
50°	1332	911	719
55°	1281	800	613
60°	1222	685	505
65°	1154	567	455
70°	1072	458	412
75°	969	404	375
80°	820	339	325
85°	573	227	245

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1380 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.2	2.2
10°-20°	568.9	6.1
20°-30°	798.7	8.6
30°-40°	870.7	9.4
40°-50°	800.3	8.6
50°-60°	628.5	6.8
60°-70°	409.1	4.4
70°-80°	210.6	2.3
80°-90°	58.6	0.6
90°-100°	104.7	1.1
100°-110°	332.7	3.6
110°-120°	569.3	6.1
120°-130°	748.8	8.1
130°-140°	840.5	9.1
140°-150°	824.2	8.9
150°-160°	691.4	7.4
160°-170°	458.5	4.9
170°-180°	160.3	1.7
0°-30°	1574.9	17.0
0°-40°	2445.6	26.3
0°-60°	3874.3	41.7
0°-90°	4552.5	49.0
90°-120°	1006.7	10.8
90°-150°	3420.1	36.8
90°-180°	4730.0	51.0
0°-180°	9282.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2211	2211	2211	2211	2211	
5°	2211	2201	2175	2193	2187	210
15°	2103	2081	2013	1975	1955	593
25°	1909	1845	1713	1631	1601	878
35°	1645	1543	1367	1241	1197	1030
45°	1345	1211	1001	858	810	1039
55°	1022	866	650	530	492	914
65°	690	528	348	280	274	685
75°	368	228	160	146	144	389
85°	86	44	38	38	38	99
90°	2	18	50	47	48	9
95°	74	89	91	91	89	83
105°	307	311	314	317	317	324
115°	571	580	577	575	571	565
125°	831	844	840	835	834	743
135°	1075	1091	1094	1092	1088	831
145°	1305	1315	1323	1325	1319	815
155°	1492	1496	1501	1508	1503	687
165°	1623	1622	1622	1632	1625	458
175°	1689	1685	1682	1692	1683	160
180°	1692	1692	1692	1692	1692	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2211.3	2211.3	2211.3	2211.3	2211.3
2.5°	2221.3	2211.3	2189.1	2209.3	2205.3
5°	2211.3	2201.3	2175.1	2193.3	2187.3
7.5°	2193.3	2181.3	2153.3	2161.1	2151.2
10°	2169.2	2155.2	2115.3	2109.2	2097.2
12.5°	2139.3	2121.2	2067.1	2055.2	2033.1
15°	2103.2	2081.1	2013.1	1975.1	1955.2
17.5°	2061.2	2029.1	1945.0	1901.0	1869.0
20°	2013.1	1973.0	1873.0	1823.1	1779.0
22.5°	1961.1	1915.0	1798.9	1731.0	1701.0
25°	1909.2	1845.0	1713.0	1631.0	1600.9
27.5°	1847.2	1779.0	1632.9	1538.8	1492.8
30°	1781.1	1704.9	1544.8	1442.9	1388.7
32.5°	1717.0	1624.9	1461.0	1340.8	1290.7
35°	1645.0	1542.9	1366.9	1240.7	1196.6
37.5°	1574.9	1464.7	1278.8	1140.6	1090.7
40°	1500.8	1380.9	1186.6	1044.5	992.6
42.5°	1424.9	1296.8	1094.7	946.5	896.6
45°	1344.8	1210.6	1000.7	858.4	810.4
47.5°	1268.8	1126.8	910.6	768.4	724.4
50°	1184.7	1042.7	822.5	684.3	642.5
52.5°	1102.5	952.4	738.4	606.4	568.4
55°	1022.5	866.5	650.3	530.4	492.3
57.5°	940.6	780.4	572.4	460.3	428.2
60°	856.5	696.4	490.3	388.3	356.2
62.5°	774.5	614.5	420.2	324.2	308.3
65°	690.5	528.2	348.2	280.3	274.1
67.5°	610.4	448.2	280.3	246.1	240.1
70°	526.3	370.2	232.0	212.1	204.0
72.5°	446.3	298.1	194.0	178.2	174.1
75°	368.2	228.0	160.1	146.1	144.2
77.5°	290.3	162.0	126.1	118.1	114.0
80°	218.0	116.1	95.9	88.1	88.1
82.5°	152.0	78.1	66.0	62.0	62.0
85°	86.0	44.0	38.0	38.0	38.0
87.5°	32.1	16.0	16.0	14.0	14.0
90°	1.5	18.4	50.0	46.9	48.4
92.5°	31.7	42.9	44.4	45.9	45.9
95°	74.5	88.7	91.3	91.3	88.7
97.5°	123.9	137.2	142.9	142.9	142.9
100°	181.1	192.8	196.9	196.9	195.4
102.5°	241.3	249.9	255.6	257.1	255.6
105°	307.1	311.2	314.2	316.8	316.8
107.5°	372.4	378.5	378.5	379.5	372.4
110°	435.7	443.8	443.8	443.8	439.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	504.0	512.6	511.1	507.0	504.0
115°	571.3	579.5	576.9	575.4	571.3
117.5°	638.2	649.4	642.2	638.2	634.1
120°	705.5	716.8	705.5	705.5	700.9
122.5°	766.7	781.0	773.8	769.8	766.7
125°	831.0	843.7	839.6	835.1	833.6
127.5°	893.8	909.5	903.9	897.9	893.8
130°	952.4	970.8	968.2	965.2	959.6
132.5°	1018.2	1032.5	1033.5	1026.4	1022.3
135°	1074.9	1090.7	1093.7	1092.2	1088.1
137.5°	1138.1	1150.8	1153.4	1152.4	1146.3
140°	1193.7	1206.5	1213.6	1213.6	1208.0
142.5°	1250.8	1263.6	1267.7	1269.2	1263.6
145°	1304.9	1315.1	1323.3	1324.8	1319.2
147.5°	1353.3	1366.1	1372.3	1374.7	1369.1
150°	1403.4	1412.0	1417.6	1422.2	1417.6
152.5°	1447.7	1456.4	1463.6	1469.2	1463.6
155°	1492.1	1496.2	1500.7	1508.0	1503.3
157.5°	1530.4	1533.5	1536.0	1546.2	1539.1
160°	1564.6	1567.6	1569.1	1577.8	1571.7
162.5°	1596.2	1596.2	1597.7	1607.4	1600.3
165°	1623.2	1621.7	1621.7	1631.9	1624.8
167.5°	1647.7	1643.2	1643.2	1653.3	1646.2
170°	1666.1	1662.0	1660.5	1670.6	1662.0
172.5°	1678.8	1674.7	1673.2	1683.4	1674.7
175°	1689.0	1685.0	1681.9	1692.1	1683.4
177.5°	1694.6	1690.6	1687.5	1696.1	1687.5
180°	1692.1	1692.1	1692.1	1692.1	1692.1

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	8.78	9.61	9.76	10.59	11.87	4.76	5.58	5.73	6.56	7.85
	3H	10.46	11.20	11.44	12.19	13.50	5.95	6.68	6.93	7.67	8.98
	4H	11.07	11.77	12.07	12.76	14.08	6.40	7.09	7.39	8.09	9.41
	6H	11.49	12.13	12.50	13.13	14.46	6.72	7.36	7.73	8.36	9.69
	8H	11.62	12.23	12.63	13.24	14.57	6.81	7.42	7.82	8.44	9.76
	12H	11.68	12.26	12.70	13.27	14.62	6.86	7.43	7.87	8.44	9.79
4H	2H	8.80	9.50	9.80	10.49	11.81	5.35	6.05	6.35	7.04	8.36
	3H	10.63	11.21	11.64	12.23	13.56	6.70	7.28	7.71	8.30	9.64
	4H	11.32	11.85	12.34	12.87	14.22	7.25	7.78	8.27	8.80	10.15
	6H	11.84	12.29	12.87	13.33	14.68	7.67	8.13	8.70	9.17	10.52
	8H	12.01	12.44	13.05	13.47	14.84	7.80	8.23	8.83	9.26	10.62
	12H	12.11	12.49	13.16	13.54	14.91	7.87	8.25	8.92	9.30	10.67
8H	4H	11.29	11.71	12.32	12.75	14.11	7.53	7.96	8.56	8.99	10.35
	6H	11.86	12.21	12.91	13.28	14.65	8.05	8.40	9.11	9.48	10.84
	8H	12.08	12.38	13.14	13.44	14.82	8.25	8.55	9.31	9.61	10.99
	12H	12.21	12.49	13.28	13.54	14.96	8.37	8.64	9.43	9.69	11.11
12H	4H	11.24	11.62	12.29	12.67	14.04	7.54	7.92	8.59	8.97	10.34
	6H	11.83	12.14	12.90	13.20	14.58	8.10	8.41	9.16	9.47	10.85
	8H	12.05	12.33	13.12	13.38	14.80	8.31	8.58	9.38	9.64	11.06